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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GOODLEY, JAMES E	

ART UNIT	PAPER NUMBER
2817	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,827	MATTISSON, SVEN	
	Examiner	Art Unit	
	JAMES E. GOODLEY	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,17 and 24-30* is/are rejected.

7)☒ Claim(s) *16 and 18-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 4/16/2008 have been fully considered but are moot in view of the new grounds of rejection set forth herein, being necessitated by amendment.

The double patenting rejection is removed, as applicant has submitted a valid terminal disclaimer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-8, 10-15, 17 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Hoffman (US 6,061,702 – of record)*** in view of ***Bezhad (US 6,759,904)***.

Regarding **claims 1-3, 5-8, 10 and 17,** Fig. 1 of Hoffman discloses a device for generating a noise signal [SCLK], comprising;

a noise source for generating intrinsic noise, the noise source further comprising:

noisy amplifier cell having amplifying means [11].

A first amplifier cell [positive feedback amplifier in VCO 10] is provided DC coupled to the noisy amplifier cell; and the output terminals of the noisy amplifier cell are

coupled to respective input terminals [14] of the first amplifier. The design of the first amplifier and the noisy amplifier correspond to each other, as they are both designed to develop a random clock signal output.

The input terminals of the amplifying means of the amplifier cell 11 are short-circuited to a fixed DC potential established by MOS transistors 16-19 at node 15.

Hoffman discloses a generic differential amplifier 11 and as such, fails to disclose a load further comprising cascoded transistors coupled to the amplifying means.

However, Fig. 15 of Bezhad discloses a conventional differential common-source, cascode amplifier, with transistors 1590 and 1592 cascoded with input transistors 1584 and 1586. The amplifier further includes a tail current source [1588] and a common mode feedback circuit [1480].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hoffman to utilize a conventional differential cascode amplifier, such as that disclosed by Bezhad, for the purpose of ensuring a higher slew rate output.

Regarding **claim 11**, Hoffman discloses the device of claim 1, but fails to disclose, "wherein the load, the amplifying means, and the tail current source of the noisy amplifier cell comprises BJT (Bipolar Junction Transistors) transistors."

However, one of ordinary skill in the art would recognize that BJT transistor implementation is an equivalency of using MOS transistor technology.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hoffman to utilize bipolar transistor

technology instead of the MOS technology disclosed in Hoffman, as such implementation is an art-recognized equivalency.

Regarding **claims 12 and 13**, Hoffman discloses the device of claim 1, but fails to disclose, "wherein the load comprises NMOS transistors and the amplifying means and tail current source comprises PMOS transistors."

However, one of ordinary skill in the art would recognize that the CMOS topology of the noise source in Hoffman could equivalently be adapted to implementation with an NMOS load and PMOS tail current source.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hoffman to utilize an NMOS load and PMOS tail current source (or vice versa), as such an implementation is the functional equivalent of the PMOS load and NMOS tail current source in Hoffman.

Regarding **claim 14**, the device of Hoffman fails to disclose the device according to claim 13, "wherein the width-over-length ratio of the transistors of the amplifying means is at least 3 times the width-over-length ratio of the transistors of the tail-current source, and the width-over-length ratio of the second transistor pair of the load is at least 3 times the size of the width-over-length ratio of the first transistor pair of the load."

However, there appears to be no criticality in the applicant's disclosure as to the particular width-length ratio of the transistors. It is believed the ratio is simply a design choice for one of ordinary skill in the art to decide upon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hoffman in view of Sauer to utilize the

particular width to length ratio of the claimed transistors, as such transistor sizes are a mere design choice.

Regarding **claim 15**, the device of Hoffman fails to disclose the device according to claim 13 wherein the width of the transistors of the amplifying means and the transistors of the second transistor pair of the load is in the range of 2.5-125 .mu.m, and the length of the transistors is in the range of 0.25-12.5 .mu.m; the width and the length of the transistors of the tail-current source and the transistors of the first transistor pair of the load are in the range of 0.25-12.5 .mu.m.

However, there appears to be no criticality in the applicant's disclosure as to the particular width-length ratio of the transistors. It is believed the ratio is simply a design choice for one of ordinary skill in the art to decide upon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hoffman in view of Sauer to utilize the particular width to length ratio of the claimed transistors, as such transistor sizes are a mere design choice.

Regarding **claims 24, 25 and 28**, Hoffman in view of Bezhad discloses the device of claim 1, further comprising a noise source output terminal [15];

a random generating sequence device [amplifier 11, VCO 10 and clock circuitry 25-36] for generating a random sequence of bits coupled to the noise source output terminal;

the random generating sequence device further comprises:

oscillating means [10] having an input terminal [14] for receiving a bias as input, the oscillating means coupled to the noise source output terminal, the oscillating means further comprising at least one oscillator amplifier (inherently, as active feedback is required in an oscillator);

amplifying means comprising at least one a differential amplifier [11] coupled to a corresponding at least one oscillator amplifier;

a load [1598, 1599] coupled to the amplifying means and to a power supply, the load being adapted to protect the amplifying means from interfering signals; and

a tail current source [1588] coupled to the amplifying means and grounding means.

Regarding **claims 26 and 27**, the device of Hoffman in view of Sauer does not specifically disclose utilizing the random noise generator in a mobile radio terminal or mobile telephone.

However, as is notoriously well-known in the art, a random noise source may be utilized in such mobile applications as spread spectrum or other cryptographic forms of communication, in order to establish a secure communications link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hoffman in view of Sauer to utilize the random noise generator in a mobile application such as spread spectrum or other cryptographic forms of communication, in order to establish a secure communications link.

Regarding **claim 29**, the device of Hoffman in view of Sauer fails to disclose the device according to claim 12, "wherein the width-over-length ratio of the transistors of the amplifying means is at least 3 times the width-over-length ratio of the transistors of the tail-current source, and the width-over-length ratio of the second transistor pair of the load is at least 3 times the size of the width-over-length ratio of the first transistor pair of the load."

However, there appears to be no criticality in the applicant's disclosure as to the particular width-length ratio of the transistors. It is believed the ratio is simply a design choice for one of ordinary skill in the art to decide upon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hoffman in view of Sauer to utilize the particular width to length ratio of the claimed transistors, as such transistor sizes are a mere design choice.

Regarding **claim 30**, the device of Hoffman in view of Sauer fails to disclose the device according to claim 12 wherein the width of the transistors of the amplifying means and the transistors of the second transistor pair of the load is in the range of 2.5-125 .mu.m, and the length of the transistors is in the range of 0.25-12.5 .mu.m; the width and the length of the transistors of the tail-current source and the transistors of the first transistor pair of the load are in the range of 0.25-12.5 .mu.m.

However, there appears to be no criticality in the applicant's disclosure as to the particular width-length ratio of the transistors. It is believed the ratio is simply a design choice for one of ordinary skill in the art to decide upon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Hoffman in view of Sauer to utilize the particular width to length ratio of the claimed transistors, as such transistor sizes are a mere design choice.

Claims 1-3, 5, 7-9, 11, 17, 24, 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Sauer (US 6,064,257 – of record)*** in view of ***Bezhad (US 6,759,904)***.

Regarding **claims 1-3, 5, 7-9, 11, 17, 24, 25 and 28,** Figs 5-7 of Sauer disclose a device for generating a noise signal [Vout], comprising;

a noise source [50] for generating intrinsic noise, the noise source further comprising:

noisy amplifier cell having differential amplifying means [for example, transistors Q1-Q6 – see Fig. 5];

a load [PNP transistors Q7-Q12] coupled to the amplifying means and a power supply [Vcc]; and

a tail-current source [I1-I3] coupled to grounding means and to the amplifying means.

The amplifying means comprises a common-source amplifier (see MP1-MP4). The resistive loads are cascoded with amplifier cells Q1-Q6.

A first amplifier cell [61 – Q15, Q16] is provided DC coupled to the noisy amplifier cell; and the output terminals of the noisy amplifier cell are coupled to respective input

terminals [bases] of the first amplifier. The design of the first amplifier and the noisy amplifier correspond to each other, as they are both designed to develop the noise-based random bias control signal to the VCO to develop a random clock signal.

The input terminals of the amplifying means of the amplifier cell 11 are short-circuited to a fixed DC potential established by MOS transistors 16-19 at node 15.

Fig. 6 of Sauer discloses the output of differential amplifier 61 feeding a differential VCO structure 61, having a tail current source [Q17, Q18, R19, R20] and a load [Q29, Q30].

Sauer, fails to disclose a load further comprising cascoded transistors coupled to the amplifying means.

However, Fig. 15 of Bezhad discloses a conventional differential common-source, cascode amplifier, with transistors 1590 and 1592 cascoded with input transistors 1584 and 1586. The amplifier further includes a tail current source [1588] and a common mode feedback circuit [1480].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Sauer to utilize a conventional differential cascode amplifier, such as that disclosed by Bezhad, for the purpose of ensuring a higher slew rate output.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over ***Hoffman*** in view of ***Bezhad*** in further view of ***Sauer***.

Regarding **claim 9**, the device of Hoffman in view of Bezhad fails to disclose the device according to claim 7, further comprising: "a differential amplifier having first and second input terminals coupled to output terminals of the first amplifier the differential amplifier comprising amplifying means; a load coupled to the amplifying means and a power supply; and a tail-current source coupled to grounding means and to the amplifying means."

However, Fig. 6 of Sauer discloses the output of differential amplifier 61 feeding a differential VCO structure 61, having a tail current source [Q17, Q18, R19, R20] and a load [Q29, Q30].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a differential VCO structure like that of Sauer's, for the purpose of being able to generate a differential output clock signal.

Allowable Subject Matter

Claims 16 and 18-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding **claim 16**, Hoffman fails to disclose the device according to claim 1, "wherein input terminals of the amplifying means of the noisy amplifier cell are short-circuited AC-wise to the grounding means."

Regarding **claim 18**, Hoffman discloses the device according to claim 7, further comprising: the first amplifier cell being DC coupled to the noisy amplifier cell; the output terminals of the noisy amplifier cell coupled to respective input terminals of the first amplifier; but fails to disclose, "a DC compensation loop having a feedback filter coupled to the output terminals of the first amplifier and to the input terminals of the noisy amplifier, respectively."

Claims 19-23 are included for their dependency.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES E. GOODLEY whose telephone number is (571)272-8598. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James E Goodley/

Examiner, Art Unit 2817

/Robert Pascal/

Supervisory Patent Examiner, Art Unit 2817